PATENT
Customer Number 22,852
Attorney Docket No. 7040.0121.00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	
Antonio SERRA et al.	)	
	)	
Serial No.: Not yet assigned	)	Group Art Unit: Not yet assigned
	)	
Filed: February 26, 2002	)	Examiner: Not yet assigned
	)	
For: PROCESS FOR PRODUCING TYRES, TYRES THUS OBTAINED AND ELASTOMERIC COMPOSITIONS USED THEREIN	)	

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

Prior to the examination of the above-captioned application, please amend this application as follows:

IN THE SPECIFICATION:

Please amend the specification, as follows:

Add two section headings, a section subheading, and a paragraph immediately after the title PROCESS FOR PRODUCING TYRES, TYRES THUS OBTAINED AND ELASTOMERIC COMPOSITIONS USED THEREIN, as follows:

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--CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of International Patent Application No. PCT/EP00/07106, filed July 25, 2000, in the European Patent Office, the contents of which are relied upon and incorporated herein by reference; additionally Applicants claim the benefit under 35 U.S.C. § 365(c) based on patent application No. 99116676.0, filed August 26, 1999, in the European Patent Office; further, Applicants claim the benefit under 35 U.S.C. § 119(e) based on prior-filed, copending provisional application No. 60/151,358, filed August 30, 1999, in the U.S. Patent and Trademark Office.

BACKGROUND OF THE INVENTION

Field of the Invention--

Page 1, line 13, add section subheading --Description of the Related Art-- prior to the start of the paragraph beginning "Processes for vulcanizing diene elastomers . . . ."

Page 4, line 29, add section heading --SUMMARY OF THE INVENTION--prior to the start of the paragraph beginning "On the basis of the Applicant's experience . . . ."

Page 20, line 4, add section heading --BRIEF DESCRIPTION OF THE DRAWINGS-- prior to the start of the paragraph beginning "The present invention will now be illustrated . . . ."

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Page 20, line 10, add section heading --DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS-- prior to the start of the paragraph beginning "With reference to Fig. 1 . . . ."

Add a new page 48 after the claims, adding the following ABSTRACT OF THE DISCLOSURE. A new, separate page 48 including the ABSTRACT OF THE DISCLOSURE is enclosed.

--ABSTRACT OF THE DISCLOSURE

A crosslinkable elastomeric composition includes an elastomeric polymer containing carboxylic groups and an epoxidized liquid organic compound containing epoxide groups located internally on a molecule of the organic compound. The composition is crosslinkable substantially in an absence of additional crosslinking agents. A process for producing tyres for vehicle wheels including the composition, a tyre for vehicle wheels including the composition, a tyre for vehicles with a tread band including the composition, and a crosslinked elastomeric product obtained by crosslinking the composition are also disclosed.--

IN THE CLAIMS:

Please cancel, without prejudice or disclaimer, claims 1-61, and add new claims 62-132, as follows:

--62. (new) A process for producing tyres for vehicle wheels, the process comprising the steps of:

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manufacturing a green tyre comprising at least one crosslinkable elastomeric material;

moulding the green tyre in a cavity defined in a vulcanization mould; and

crosslinking the at least one crosslinkable elastomeric material by heating the tyre to a predetermined temperature for a predetermined time;

wherein the at least one crosslinkable elastomeric material comprises:

an elastomeric polymer containing carboxylic groups, and

an epoxidized liquid organic compound containing epoxide groups located internally on a molecule of the organic compound; and

wherein the crosslinking step is carried out substantially in an absence of additional crosslinking agents.

63. (new) The process of claim 62, wherein the crosslinking step is carried out by heating the at least one crosslinkable elastomeric material to a temperature of at least 120°C for a time of at least 3 minutes.

64. (new) The process of claim 62, wherein the crosslinking step is carried out by heating the at least one crosslinkable elastomeric material to a temperature of at least 160°C for a time of at least 10 minutes.

65. (new) The process of claim 62, wherein the at least one crosslinkable elastomeric material comprises a reinforcing filler.

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66. (new) The process of claim 65, wherein an amount of the reinforcing filler is between 20 phr and 120 phr.

67. (new) The process of claim 65, wherein an amount of the reinforcing filler is between 40 phr and 90 phr.

68. (new) The process of claim 62, wherein the epoxidized liquid organic compound has an epoxide equivalent weight between 40 and 2,000.

69. (new) The process of claim 62, wherein the epoxidized liquid organic compound has an epoxide equivalent weight between 50 and 1,500.

70. (new) The process of claim 62, wherein the epoxidized liquid organic compound has an epoxide equivalent weight between 100 and 1,000.

71. (new) The process of claim 62, wherein the epoxidized liquid organic compound comprises an epoxidized oil.

72. (new) The process of claim 71, wherein the epoxidized oil has a freezing temperature lower than 23°C.

73. (new) The process of claim 62, wherein the epoxidized liquid organic compound comprises an epoxidized diene oligomer.

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74. (new) The process of claim 73, wherein the epoxidized diene oligomer has an average molecular weight between 500 and 10,000.

75. (new) The process of claim 73, wherein the epoxidized diene oligomer has an average molecular weight between 1,000 and 8,000.

76. (new) The process of claim 73, wherein the epoxidized diene oligomer is an epoxidized oligomer of 1,3-butadiene; isoprene; or 1,3-butadiene and isoprene.

77. (new) The process of claim 62, wherein the elastomeric polymer containing carboxylic groups is a homopolymer or copolymer containing at least 0.1 mol% of carboxylic groups relative to a total number of moles of monomers in the elastomeric polymer.

78. (new) The process of claim 77, wherein the elastomeric polymer containing carboxylic groups contains from 1 mol% to 30 mol% of carboxylic groups.

79. (new) The process of claims 77, wherein the elastomeric polymer containing carboxylic groups has an average molecular weight between 2,000 and 1,000,000.

80. (new) The process of claim 77, wherein the elastomeric polymer containing carboxylic groups has an average molecular weight between 50,000 and 500,000.

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81. (new) The process of claim 62, wherein the elastomeric polymer containing carboxylic groups is obtained by (co)polymerization of one or more conjugated diene monomers; optionally in admixture with monovinylarenes, polar comonomers, or monovinylarenes and polar comonomers; and subsequent carboxylation.

82. (new) The process of claim 62, wherein the elastomeric polymer containing carboxylic groups is obtained by copolymerization between a conjugated diene; optionally in admixture with monovinylarenes, polar comonomers, or monovinylarenes and polar comonomers; and an olefinic monomer containing one or more carboxylic groups or derivatives thereof.

83. (new) The process of claim 62, wherein the elastomeric polymer containing carboxylic groups is obtained by copolymerization of one or more monoolefins with an olefinic comonomer containing one or more carboxylic groups or derivatives thereof.

84. (new) The process of claim 62, wherein an amount of the epoxidized liquid organic compound is between 5 parts-by-weight and 200 parts-by-weight per 100 parts-by-weight of elastomeric polymer.

85. (new) The process of claim 62, wherein an amount of the epoxidized liquid organic compound is between 10 parts-by-weight and 120 parts-by-weight per 100 parts-by-weight of elastomeric polymer.

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86. (new) The process of claim 62, wherein the at least one crosslinkable elastomeric material comprises an effective amount of a condensation catalyst.

87. (new) A tyre for vehicle wheels, comprising:

one or more components made of a crosslinked elastomeric material;

wherein at least one of the components comprises, as the crosslinked elastomeric material, an elastomeric polymer containing carboxylic groups crosslinked by reaction with an epoxidized liquid organic compound containing epoxide groups located internally on a molecule of the organic compound, and

wherein the elastomeric polymer containing carboxylic groups was crosslinked substantially in an absence of additional crosslinking agents.

88. (new) The tyre of claim 87, wherein the crosslinked elastomeric material comprises a reinforcing filler.

89. (new) The tyre of claim 87, wherein an amount of the reinforcing filler is between 20 phr and 120 phr.

90. (new) The tyre of claim 87, wherein an amount of the reinforcing filler is between 40 phr and 90 phr.

91. (new) The tyre of claim 87, wherein the epoxidized liquid organic compound has an epoxide equivalent weight between 40 and 2,000.

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92. (new) The tyre of claim 87, wherein the epoxidized liquid organic compound comprises an epoxidized oil.

93. (new) The tyre of claim 87, wherein the epoxidized liquid organic compound comprises an epoxidized diene oligomer.

94. (new) The tyre of claim 87, wherein the elastomeric polymer containing carboxylic groups is a homopolymer or copolymer containing at least 0.1 mol% of carboxylic groups relative to a total number of moles of monomers in the elastomeric polymer.

95. (new) The tyre of claim 87, wherein the elastomeric polymer containing carboxylic groups is obtained by (co)polymerization of one or more conjugated diene monomers; optionally in admixture with monovinylarenes, polar comonomers, or monovinylarenes and polar comonomers; and subsequent carboxylation.

96. (new) The tyre of claim 87, wherein the elastomeric polymer containing carboxylic groups is obtained by copolymerization between a conjugated diene; optionally in admixture with monovinylarenes, polar comonomers, or monovinylarenes and polar comonomers; and an olefinic monomer containing one or more carboxylic groups or derivatives thereof.

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97. (new) The tyre of claim 87, wherein the elastomeric polymer containing carboxylic groups is obtained by copolymerization of one or more monoolefins with an olefinic comonomer containing one or more carboxylic groups or derivatives thereof.

98. (new) A tyre for vehicles, comprising:

a carcass structure;

a belt structure extending coaxially around the carcass structure; and

a tread band extending coaxially around the belt structure and having an external rolling surface intended to come into contact with the ground;

wherein the tread band comprises an elastomeric polymer containing carboxylic groups crosslinked by reaction with an epoxidized liquid organic compound containing epoxide groups located internally on a molecule of the organic compound, and

wherein the elastomeric polymer containing carboxylic groups is crosslinked substantially in an absence of additional crosslinking agents.

99. (new) The tyre of claim 98, wherein the tread band comprises a reinforcing filler.

100. (new) The tyre of claim 99, wherein an amount of the reinforcing filler is between 20 phr and 120 phr.

101. (new) The tyre of claim 99, wherein an amount of the reinforcing filler is between 40 phr and 90 phr.

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102. (new) The tyre of claim 98, wherein the epoxidized liquid organic compound has an epoxide equivalent weight between 40 and 2,000.

103. (new) The tyre of claim 98, wherein the epoxidized liquid organic compound comprises an epoxidized oil.

104. (new) The tyre of claim 98, wherein the epoxidized liquid organic compound comprises an epoxidized diene oligomer.

105. (new) The tyre of claim 98, wherein the elastomeric polymer containing carboxylic groups is a homopolymer or copolymer containing at least 0.1 mol% of carboxylic groups relative to a total number of moles of monomers in the elastomeric polymer.

106. (new) The tyre of claim 98, wherein the elastomeric polymer containing carboxylic groups is obtained by (co)polymerization of one or more conjugated diene monomers; optionally in admixture with monovinylarenes, polar comonomers, or monovinylarenes and polar comonomers; and subsequent carboxylation.

107. (new) The tyre of claim 98, wherein the elastomeric polymer containing carboxylic groups is obtained by copolymerization between a conjugated diene; optionally in admixture with monovinylarenes, polar comonomers, or monovinylarenes and polar comonomers; and an olefinic monomer containing one or more carboxylic groups or derivatives thereof.

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108. (new) The tyre of claim 98, wherein the elastomeric polymer containing carboxylic groups is obtained by copolymerization of one or more monoolefins with an olefinic comonomer containing one or more carboxylic groups or derivatives thereof.

109. (new) A crosslinkable elastomeric composition, comprising:

an elastomeric polymer containing carboxylic groups; and

an epoxidized liquid organic compound containing epoxide groups located internally on a molecule of the organic compound;

wherein the composition is crosslinkable substantially in an absence of additional crosslinking agents.

110. (new) The composition of claim 109, further comprising a reinforcing filler.

111. (new) The composition of claim 110, wherein an amount of the reinforcing filler is between 20 phr and 120 phr.

112. (new) The composition of claim 110, wherein an amount of the reinforcing filler is between 40 phr and 90 phr.

113. (new) The composition of claim 109, wherein the epoxidized liquid organic compound has an epoxide equivalent weight between 40 and 2,000.

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114. (new) The composition of claim 109, wherein the epoxidized liquid organic compound has an epoxide equivalent weight between 50 and 1,500.

115. (new) The composition of claim 109, wherein the epoxidized liquid organic compound has an epoxide equivalent weight between 100 and 1,000.

116. (new) The composition of claim 109, wherein the epoxidized liquid organic compound comprises an epoxidized oil.

117. (new) The composition of claim 116, wherein the epoxidized oil has a freezing temperature lower than 23°C.

118. (new) The composition of claim 109, wherein the epoxidized liquid organic compound comprises an epoxidized diene oligomer.

119. (new) The composition of claim 118, wherein the epoxidized diene oligomer has an average molecular weight between 500 and 10,000.

120. (new) The composition of claim 118, wherein the epoxidized diene oligomer has an average molecular weight between 1,000 and 8,000.

121. (new) The composition of claim 118, wherein the epoxidized diene oligomer is an epoxidized oligomer of 1,3-butadiene; isoprene; or 1,3-butadiene and isoprene.

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122. (new) The composition of claim 109, wherein the elastomeric polymer containing carboxylic groups is a homopolymer or copolymer containing at least 0.1 mol% of carboxylic groups relative to a total number of moles of monomers present in the elastomeric polymer.

123. (new) The composition of claim 122, wherein the elastomeric polymer containing carboxylic groups contains from 1 mol% to 30 mol% of carboxylic groups.

124. (new) The composition of claim 122, wherein the elastomeric polymer containing carboxylic groups has an average molecular weight between 2,000 and 1,000,000.

125. (new) The composition of claim 122, wherein the elastomeric polymer containing carboxylic groups has an average molecular weight between 50,000 and 500,000.

126. (new) The composition of claim 109, wherein the elastomeric polymer containing carboxylic groups is obtained by (co)polymerization of one or more conjugated diene monomers; optionally in admixture with monovinylarenes, polar comonomers, or monovinylarenes and polar comonomers; and subsequent carboxylation.

127. (new) The composition of claim 109, wherein the elastomeric polymer containing carboxylic groups is obtained by copolymerization between a conjugated diene; optionally in admixture with monovinylarenes, polar comonomers, or monovinylarenes and polar

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comonomers; and an olefinic monomer containing one or more carboxylic groups or derivatives thereof.

128. (new) The composition of claim 109, wherein the elastomeric polymer containing carboxylic groups is obtained by copolymerization of one or more monoolefins with an olefinic comonomer containing one or more carboxylic groups or derivatives thereof.

129. (new) The composition of claim 109, wherein an amount of the epoxidized liquid organic compound is between 5 parts-by-weight and 200 parts-by-weight per 100 parts-by-weight of elastomeric polymer.

130. (new) The composition of claim 109, wherein an amount of the epoxidized liquid organic compound is between 10 parts-by-weight and 120 parts-by-weight per 100 parts-by-weight of elastomeric polymer.

131. (new) The composition of claim 109, further comprising an effective amount of a condensation catalyst.

132. (new) A crosslinked elastomeric product obtained by crosslinking the composition of claim 109.--

REMARKS

Applicants submit this Preliminary Amendment together with a continuation application under 37 C.F.R. § 1.53(b).

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In this Preliminary Amendment, Applicants add section headings, section subheadings, and an Abstract of the Disclosure to conform to U.S. practice. Additionally, Applicants add claims to the right of priority and benefit. Additionally, Applicants cancel, without prejudice or disclaimer, claims 1-61, and add new claims 62-132, which include the same subject matter as the original claims, to improve clarity. The originally-filed specification, claims, abstract, and drawings fully support the amendments to the specification and the addition of new claims 62-132. No new matter was introduced.

Before entry of this Preliminary Amendment, claims 1-61 were pending in this application. After entry of this Preliminary Amendment, claims 62-122 are pending in this application.

If there is any fee due in connection with the filing of this Preliminary Amendment, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: February 26, 2002

By: _____
Lawrence F. Galvin
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ABSTRACT OF THE DISCLOSURE

A crosslinkable elastomeric composition includes an elastomeric polymer containing carboxylic groups and an epoxidized liquid organic compound containing epoxide groups located internally on a molecule of the organic compound. The composition is crosslinkable substantially in an absence of additional crosslinking agents. A process for producing tyres for vehicle wheels including the composition, a tyre for vehicle wheels including the composition, a tyre for vehicles with a tread band including the composition, and a crosslinked elastomeric product obtained by crosslinking the composition are also disclosed.